

## LEARNING ENVIRONMENT IMAGINEERING APPROACH ON WEB BASED INSTRUCTION FOR CREATIVE THINKING DEVELOPMENT

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### ABSTRACT

*The purpose of the study aims to design, assess, and certify a learning environment imagineering approach on web based instruction for creative thinking development. The population of the study were the experts who have expertise on environment design on web based instruction, on imagineering approach, and on creative thinking. The sample on this research were seven experts selected by purposive selection who have experiences in their field for at least three years.*

*The instruments which used in this study were the assessment and certification on learning environment imagineering approach on web based instruction for creative thinking development divided into three parts as followed: part I- respondents general information, part II- open-ended questions related with learning environment imagineering approach on web based instruction for creative thinking development, and part III- the assessment and certification on learning environment imagineering approach on web based instruction for creative thinking development.*

*The research results revealed seven experts' opinions and feedback who assessed and certified on learning environment imagineering approach on web based instruction for creative thinking development. It was found that the average of expert's opinion on the first element- Imagineering, the second elements- Web Based Instruction, the third element- Problem Based Learning, and the forth element- Creative Thinking was at 4.61 which was at the most appropriate level.*

**KEYWORDS:** *Imagineering, Web Based Instruction, Problem Based Learning & Creative Thinking*

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### INTRODUCTION

The educational system in Thailand playing more attention an acquisition of knowledge as a main principle, on the other hand there is another essential part in acquisition which is creative thinking skill. The old teaching method was effect the way to acquisition, many student are not motivated to learn and also lack of creative thinking skill. Many students had good knowledge but they can't accomplishes anything. In order to find the way to develop creative thinking skill, push the student imagination to benefit their learning and go on.

In education system, not only knowledge is emphasized but also creative thinking. A redundancy of learning will cause the learners lack of enthusiasm and skills in creative thinking because having load of knowledge but less of enthusiasm leads learners lack of knowledge utilization in working including the action which lack of creative thinking. This deficiency may cause the learners not able to use their knowledge appropriately so utilizing a creative thinking is the accomplished way of learning.

According to the problem, there isa crisis which is not only in the education level but also in the country level that requires the cooperation from everyone to solve this problem. The current and future education system in

Thailand is supported the use of technology such as computer and up-to-date electronic devices and use them as tools in seeking the knowledge. The imagineering learning process is a method in developing a self-studied process for producing creative thinking and be able to create the innovation. Therefore, the researcher was interested in adapting an imagineering approach to develop a learning environment imagineering approach on web based instruction for creative thinking development.

## PURPOSES OF THE STUDY

- To design a learning environment imagineering approach on web based instruction for creative thinking development.
- Analyzing the elements which related to learning environment imagineering approach on web based instruction for creative thinking development.
- Identifying the elements which related to learning environment imagineering approach on web based instruction for creative thinking development.
- To assess and certify a learning environment imagineering approach on web based for creative thinking development.

## DATA COLLECTION

The study is divided into two sections as follows;

### Research Study: Phase I

- Analyzing learning elements by study from documents, textbooks, and research as follows,
  - Imagineering Approach
  - Web Based Instruction
  - Problem Based Learning
  - Creative Thinking
- Identifying elements and characteristics which related to development on a learning environment imagineering approach on web based instruction for creative thinking development.
- Designing a learning environment imagineering approach on web based instruction for creative thinking development.
- Assigning a draft of learning environment imagineering approach on web based instruction for creative thinking development to seven experts for assessing. The experts assessed and provided recommendations appropriately.

## SCOPE OF THE RESEARCH

### Population

The experts who specialized in environment design on web based instruction, imagineering approach, and creative thinking.

### Sample

The sample on this research were seven experts selected by purposive selection using a criteria which the sample should be an expert and experienced in their field for at least three years (could be categorized as two experts on environment design on web based instruction, two experts on imagineering approach, and three experts on creative thinking).

### RESEARCH INSTRUMENTS

- The instruments which used to design a learning environment Imagineering approach on web based instruction for creative thinking development can be enumerated as analyzing learning elements by study from documents, textbooks, and research. The topic for analyzing was selected by these keywords- imagineering approach, web based instruction, problem based learning, and creative thinking.
- The assessment and certification on learning environment imagineering approach on web based instruction for creative thinking development were divided into three parts as followed; part I- respondents general information, part II- open-ended questions related with learning environment imagineering approach on web based instruction for Creative thinking development, and part III- the assessment and certification on learning environment imagineering approach on web based instruction for creative thinking development.

### RESEARCH RESULTS

The results of a learning environment imagineering approach on web based instruction for creative thinking development from analyzing the three data as

- Imagineering approach
- Web based instruction
- Creative thinking. It was revealed as follows,

**Table 1: The Synthesis of Imagineering Elements**

		Prachyanun Nilsook, (2014)	Partnership for 21 <sup>st</sup> century Skill, (2009)	Nijis and Peters, (2002)	Guzadial and Tew, (2006)	Langford, (2010)
<b>1</b>	<b>Imagineering</b>					
	- Imagine	✓	✓	✓	✓	✓
	- Design	✓	✓	✓	✓	✓
	- Develop	✓	✓	✓	✓	✓
	- Present	✓	✓	✓	✓	✓
	- Improvement	✓	✓	✓	✓	✓
	- Evaluate	✓	✓	✓	✓	✓

Table 2: The Synthesis of Creative Thinking Elements

		Guiford, (1967)	AreeRungsinu n, (1984)	Dalton, (1988)	AreePanmane e, (1997)	Lowenfeld and Britain, (1987)
<b>2</b>	<b>Creative Thinking</b>					
	- Originality	✓	✓	✓	✓	✓
	- Fluency	✓	✓	✓	✓	✓
	- Flexibility	✓	✓	✓	✓	✓
	- Elaboration	✓	✓	✓	✓	✓
	- Curiosity			✓		
	- Complexity			✓		
	- Risk-taking			✓		
	- Imagination			✓		

Table 3: The Synthesis of Web based Instruction Elements

		Doherty, (1988)	SuriyanunNohset, (2006)	GidanunMilthong, (2000)	ThanompawnLaoja russaeng,(2001)	Doherty, (1990)	PrachyanunNilsook , (2000)	SereePermechart, (2008)	VasanaPusedin, (2009)
<b>3</b>	<b>Web based Instruction</b>								
	- Text	✓	✓	✓	✓	✓	✓	✓	✓
	- Graphic	✓	✓	✓	✓	✓	✓	✓	✓
	- E-mail	✓	✓	✓	✓	✓	✓	✓	✓
	- Web board	✓	✓	✓	✓	✓	✓	✓	✓
	- Chat	✓	✓	✓	✓	✓	✓	✓	✓
	- Conference	✓	✓	✓	✓	✓	✓	✓	✓
	- Electronics Home Work			✓					

Table 4: The synthesis of Problem Based Learning

		Dr. Howard Barrows, (1985)	Ann Kelson, (1985)	Duch, Groh, & Allen (2001)	Mutthana Thummaboot (2545)	Pattaravadeeemmak , (2554)
<b>4</b>	<b>Problem Based Learning</b>					
	- Problem	✓	✓	✓	✓	✓
	- Integration of idea	✓	✓	✓	✓	✓
	- Teamwork	✓	✓	✓	✓	✓
	- Problem solving process	✓	✓	✓	✓	✓
	- self - learning	✓	✓	✓	✓	✓

According to tables 1, 2, 3, and 4, a synthesizing of the elements on designing a learning environment imagineering approach on web based instruction for creative thinking development from documents, text books, and research in both domestic and abroad revealed that the elements of the topic constructed a Creative Thinking. The elements

which built Creative Thinking can be discriminated into 11 elements that are Imagineering, Imagine, Design, Develop, Present, Improvement, Evaluate, Web based Instruction, Text, Graphic, E-mail, Web board, Chat, and conference. These elements improved Creative Thinking that enumerated into four aspects as follows; Originality, Fluency, Flexibility, and Elaboration. The Problem Based Learning Theory was used for educational systems. These elements were used to utilize in learning through web based multimedia. Moreover, these elements also produced different activities between instructors and learners in a normal class.

- Data collection collected by using an assessment and certification on learning environment imagineering approach on web based instruction for creative thinking development which was done by seven experts. The results are as follows,

**Table 5: The Certification of Learning Environment Imagineering Approach on Web Based Instruction for Creative Thinking Development (N=7)**

The Elements of Learning Environment Imagineering Approach on Web Based Instruction for Creative Thinking Development		Mean	S.D.	Proper Level
<b>1</b>	<b>Imagineering</b>			
	1. Imagine Instructors will make a question then learner will receive a question to create their works by using these methods 1.1 Instructor specify an imagination question (Problem) to learners	4.43	0.79	The most appropriate
	1.2 learners posted their works through web based instruction	4.43	0.79	The most appropriate
	1.3 Instructors and other learners could express their point of view (Discussion) on the works and analyzing the possibility of works together. This is a brain storm of learners on suggestion, solution, and discussion.	4.86	0.38	The most appropriate
	2. Design - Draft	4.71	0.49	The most appropriate
	- Story board	4.71	0.49	The most appropriate
	- Script	4.71	0.49	The most appropriate
	- Prototype	4.57	0.53	The most appropriate
	- Develop	4.86	0.38	The most appropriate
	3. Develop	4.86	0.38	The most appropriate
	4. Present	4.29	0.76	The most appropriate
	5. Improvement	4.71	0.49	The most appropriate
	6. Evaluate	4.86	0.38	The most appropriate
<b>2</b>	<b>Web based Instruction</b>			
	- Text	4.86	0.38	The most appropriate
	- Graphic	4.71	0.49	The most appropriate
	- E-Mail	4.71	0.49	The most appropriate
	- Web board	4.86	0.38	The most appropriate
	- Chat	4.86	0.38	The most appropriate
	- Conference	4.43	0.53	The most appropriate
<b>3</b>	<b>Problem Based Learning</b>	<b>4.86</b>	<b>0.38</b>	<b>The Most Appropriate</b>
<b>4</b>	<b>Creative Thinking</b>			
	1. Originality	4.86	0.38	The most appropriate
	2. Fluency	4.86	0.38	The most appropriate
	3. Flexibility	4.57	0.53	The most appropriate
	4. Elaboration	4.71	0.49	The most appropriate
	<b>Total</b>	<b>4.61</b>	<b>0.64</b>	<b>The Most Appropriate</b>

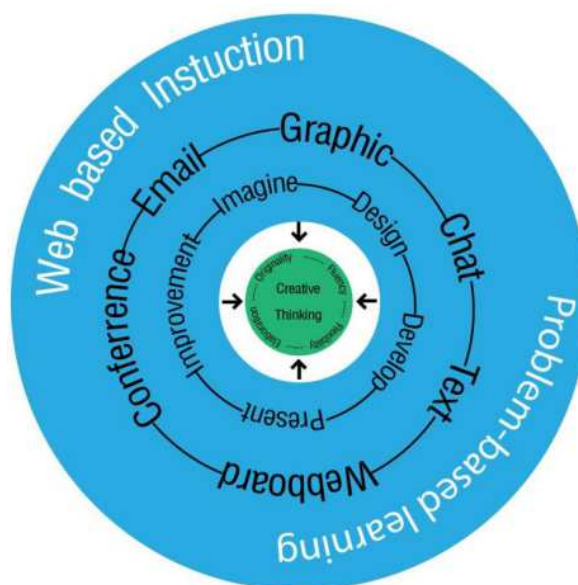
According to Table 4, the analysis of learning environment imagineering approach on web based instruction for creative thinking development assessment found that the elements of learning environment imagineering approach on web based instruction for creative thinking development had an overall mean at 4.61 at the most appropriate level.

## RESEARCH RESULTS

Two purposes of this research are 1. Designing a learning environment imagineering approach on web based instruction for creative thinking development by analyzing the elements related to the topic and could be specified the elements related to a design on earning environment imagineering approach on web based instruction for creative thinking development. 2. To assess and certify a learning environment imagineering approach on web based instruction for creative thinking development.

### The Results on Designing a Learning Environment Imagineering Approach on Web Based Instruction for Creative Thinking Development

The study was analyzed and synthesized concerning a design on learning environment imagineering approach on web based instruction for creative thinking development which combined of ideas, principles, and the elements of the topic for promoting creative thinking, theory, and related research- in the sake of bringing a basic information of these elements to utilize in the research. The study collected the data by assessing the relation and appropriateness of learning environment imagineering approach on web based instruction for creative thinking development from seven experts which had details as follows; The analysis of learning environment imagineering approach on web based instruction for creative thinking development found out that the design, which consisted of 1. Web Based Instruction, 2. Problem Based Instruction, and 3. Imagineering Approach, should have these elements as shown in Figure 1.



**Figure1: Design of Learning Environment Imagineering Approach on Web Based Instruction for Creative Thinking Development**

According to Figure 1, it could be seen that a learning environment imagineering approach on web based instruction for creative thinking development consists of four major elements describe details as follows,

**The First Element:** Imagineering This is a method in developing learners by emphasized on self-study, creative

thinking, and be able to create an innovation (Partnership for 21<sup>st</sup> century Skill, 2009) (as cited in Nilsook and Wanpiroon, 2013). This method combined of imagineering approach web based learning for creative thinking development which consist of,

- **Imagine:** Instructor will specify the question and learners should create their works from the question. Learners could use their imagination unlimited for building their master piece thus the instructor will determine the procedures as describ below,;
  - Instructor assign an imagination question (Problem) to learners then learners will make a personal piece of work.
  - Learners posted their works through web board.
  - Instructors and other learners could express their point of view (Discussion) on the works and analyzing the possibility of works together. Learners can brainstorm suggestions and possible solutions. The point of view can be expressed from learning experiences and imaginary possibility and make it become a real work. Responsibility of instructor is to let learners use their imagination freely and accept learners' opinions.
- **Design:** Learners should use their imagination and design their work follow the instructor's question then proceed by these steps; drafting, writing a story board, writing a script, creating a prototype. The Drafting, drawing a story board, writing process, including drafting a prototype before conduct a genuine work (by adapting from the instructor's suggestions) is the process that can be changed depends on learners' flexibility.
- **Develop:** This is a method which learners start to create their works from their imagination; moreover, instructors should accept learners' opinion and works. Finally, learners should be able to describe their imagination and creative thinking trough the web board on their piece of work.
- **Present:** This method is to present their developed work, invention, innovation, arts, engineer works, or any method which learners created. They should present their work through the web board by presenting as a picture with description or multimedia slides and videos depends on learner's convenience. It can be describe as a learner exhibition which other learners are able to express positive point of view in the works.
- **Improvement:** This is a result reflection on works presentation. When learners presented their works already, the instructor has a responsibility to comment the appropriate suggestion for the student and experts (including other students) may have a role on suggesting through their opinion. The instructors will comment on the suitable point and support their learners to improve the works without stress then give more appropriate time for learners to do their work so learners could produce a work which similar to their imagination.
- **Evaluation:** This is the last method which instructor will assess learner's work to score and let the others have a chance to express opinion in the works so that the instructors will be the one who assessed. The instructor will assessed the design of work by similarity of works and learner's imagination, satisfaction on presentation, and patience on working in a group.

**The Second Element:** Web based Instruction Learning on web based instruction is a computer network on the internet and World Wide Web (www.) is a way to convey the and search for learning information which consist of,

- **Text:** Text which described in the lesson and other information that using the principle in designing text should be cleared and lead learners stimulate their ability in learning- instructions and exercises are included.
- **Graphic:** It is one of the components which increases the attractiveness and motivation on learners- in case of stimulating their creative thinking and imagination.
- **E-mail:** This component is a part of learning lesson for communication between learners and instructors- and also between learners and learners. The benefits of E-mail are convenience, privacy, and be able to send media files.
- **Web board:** It is used for the communication between learners and instructors or learners and learners. The others who will learn this subject are able to see the message of learners and instructors including suggest and also question and answer through webboard.
- **Chat:** It is the component which is used for communicating between instructors and learners or among the students. The chat is a Real Time conversation included text and voice chat. If learners have questions about the lesson, they could communicate directly with the instructor or other learners through the chat.
- **Conference:** It is a Real Time conversation used in communicating between instructors and learners. Students are able to see each faces through the computer camera. This method is likewise a real class that could be hold real conference.

**The Third Element:** Problem-Based Learning This is a learning management that using problem to study (or it is so-called PBL). PBL occurred from the constructivism theory described that students will produce their new knowledge from utilizing the problem that they were faced to be a learning context for established their skills in analyzing and problem solving- included the knowledge in their field. The PBL is the results from working process which learners have to mainly use their comprehension and problem resolving. It is the teaching technique that supports the students to face problems by themselves. Learners will improve their thinking skills from PBL such as judgment, thinking, analyzing, synthesizing, and creative thinking.

**The Fourth Element:** Creative Thinking This is the element which bring Guilford's theory (1967) to be utilized in improving creative thinking framework. Details related to the elements described as follows,

- **Originality:** The definition is an strange and non-redundant thinking. It should be an extraordinary thoughts, originated from the old thoughts, or equivocated to be an outstanding thoughts. Originality can be divided to many levels and it can be the thoughts which occurred from their experiences even no one taught them.
- **Fluency:** It is defined as the non-redundant thoughts in the same topic and can be discriminated into four kinds as follows,
  - Word Fluency- it is the ability in using the word actively.
  - Associational Fluency- it is the ability in seeking out the similar word in limited time.
  - Expression Fluency- it is the ability in using phrase or sentence; in other words, learners would be able to choose the word dramatically for producing the target sentence.



- Ideational Fluency- it is the ability in searching the wanted target within the limited time. For example, thinking to utilize a brick within five or ten minutes.
- **Flexibility:** It is defined as a kind or type of thinking which could be divided into two types,
  - 3.1 Spontaneous Flexibility- it is the ability in the attempt of independent thinking. The person who had this flexibility could think about the usefulness of newspaper that they are reading. The thoughts of Spontaneous Flexibility could be group in many aspects such as receiving news, advertising, business etc. while the other who do not have creative thinking could be think in only one aspect that is for receiving news.
  - 3.2 Adaptive Flexibility- it is the ability in knowledge adaptive or experience which established usefulness in many aspects to solve problems. The one who has the Adaptive Flexibility will be able to adapt their thoughts variously.
- **Elaboration:** It is defined as the detail thoughts in process. It can be clearly described or become a complete works. This flexibility is the ability which expand the preliminary thoughts.

When learners had studied lessons and done the exercise on web based instruction (which conduct follows the principles and theories as mention above to stimulate student's creativity), learners will be able to think strange and non-redundant. The thoughts that established from creative thinking might occur from the first thought and be able to use the word fluently. These related with thoughts, abilities to adapt the knowledge, or experiences in many aspects until they could be produced concrete works. Utilizing an imagination to be a real work is the accomplished way of learning.

## CONCLUSIONS

The development on designing a learning environment imagineering approach on web based instruction for creative thinking development had been analyzed and synthesized from documents, textbooks, and research which related to the topic by using the Problem Based Learning theory. It was found that the elements of a learning environment imagineering approach on web based instruction for creative thinking development created creative thinking by using instruments and theories to support learning process combined with multimedia in the web.

The conclusion from analyzing and assessing a learning environment imagineering approach on web based instruction for creative thinking development carried out that the elements of this topic had a mean of 4.61 at the most appropriate level seven the experts who had done the surveys.

## RECOMMENDATIONS

### General Recommendations

- According to the research results, it could be seen that the elements of a learning environment imagineering approach on web based instruction for creative thinking development are the most appropriated to use. From this information, the preliminary data for instructors in developing a reengineering
- Environment on web based instruction can be used in other subjects. According to the assessment and certification of a learning environment imagineering approach on web based instruction for creative thinking development, the others who have an opportunity to read this research can be cumulative the study into the broad topic.

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